

REMARKS

Claims 1-69 were pending. All stand rejected. Claims 11, 16, 36 and 56 are amended. The applicants request further examination and consideration in view of the amendments above and remarks set forth below.

Objection to the Drawings:

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(4) on the grounds that “the reference character ‘110’ has been used to designate both user requests (specification, page 22, last line) and a main module (specification, page 22, third to last line).”

Only one instance of the reference character 110 appears in the drawings (in Figure 1). Therefore, the applicants respectfully submit that the drawings are in compliance with 37 CFR 1.84(p)(4). The applicants note that the third to last line of page 22 of the specification states that the server 100 “includes four main modules (105 to 125)...”. From Figure 1, it can be seen that the four main modules are designated by reference characters 105, 115, 120 and 125. Accordingly, to improve its clarity, the applicants have amended this sentence of the specification to state that the server 100 includes “four main modules (105, 115, 120 and 125)...”.

In view of the above, the applicants respectfully request that the objection to the drawings be removed.

Claim Objections:

Claims 11-12 were objected to on the grounds that claim 11 includes the phase “and forming of replica of...”. Claim 12 was objected to as being dependent from claim 11. The applicants have amended claim 11 to replace this phase with the following: “and forming a replica of...”.

Claims 56-69 are objected to on the grounds that the phrase “for storing” is mere intended use that has no patentable weight. The applicants have amended claim 56 to replace “for storing” with “that store” to clarify the claim. It is presumed that claims 57-69 are objected to as being dependent from claim 56.

In view of the above, the applicants respectfully request that the objection to claims 11-12 and 56-69 be removed.

Rejections under 35 U.S.C. § 112:

Claims 16 and 36 are rejected as being indefinite on the grounds that the phrase “the replica includes a backpointer having an identification of a parent directory for the file and a name of the file within the parent directory” is capable of two different interpretations. The applicants have amended claim 16 to clarify that it is the backpointer that includes that name of the file within the parent directory.

Claim 56 is rejected as being indefinite on the grounds that it does not have a distinct preamble. Claims 57-69 are rejected as being dependent from claim 56. The applicants have amended claim 56 to improve its clarity and to make the preamble more easily identifiable.

In view of the above, the applicants respectfully request that the rejections under 35 U.S.C. § 112 be removed.

Rejections under 35 U.S.C. § 102(b):

Claims 1-4, 7, 10-12, 16-21, 24, 26-28, 32-41, 44, 46-48, 52-59, 62, 64, 65 and 66 were rejected under 35 U.S.C. § 102(b) as being anticipated by “Pangaea: A Symbiotic Wide-Area File System” (hereinafter, “Saito et al.”).

The applicants respectfully traverse the rejection. The present application is a continuation-in-part application of U.S. Pub. No. 2004/0111441 (U.S. Application No. 10/315,583), filed December 9, 2002 (hereinafter, the “parent application”). Saito et al. discloses the applicants’ own work and was published less than one year prior to the filing of the parent application. Accordingly, Saito et al. does not constitute prior art with respect to the parent application. Moreover, the disclosure of the parent application contains the same subject matter that is disclosed by Saito et al. This is readily apparent by comparing Saito et al. to the parent application. For example, Saito et al. and the parent application both discuss “Pangaea” which is a wide-area file system. In addition, Saito et al. has a section heading for “Introduction” and the parent application has a section heading for “Introduction.” In addition, Saito et al. has a section heading for “Adding a Replica” and the patent application has a section heading for “Replica Addition.” Saito et al. has a section heading for “Efficient Propagation Using Harbingers” and the parent application has section headings for “Propagating Updates”

and “Optimization 2: Harbingers.” Also, Saito et al. has a section heading for “Managing Replica Membership” and the patent application has a section heading for “Replica Set Management.”

Accordingly, to the extent that Saito et al. discloses subject matter that is claimed in the present application, this subject matter obtains the benefit of the parent application for priority. Therefore, Saito et al. is not available as prior art with respect to claims 1-4, 7, 10-12, 16-21, 24, 26-28, 32-41, 44, 46-48, 52-59, 62, 64, 65 and 66 of the present application. In view of the above, the applicants submit that claims 1-4, 7, 10-12, 16-21, 24, 26-28, 32-41, 44, 46-48, 52-59, 62, 64, 65 and 66 are allowable over Saito et al.

Rejections under 35 U.S.C. § 103:

Claims 5, 22, 42 and 60 were rejected under 35 U.S.C. § 103 as being unpatentable over Saito et al. in view of “Archipelago: An Island Based File System for Highly Available and Scalable Internet Services” (hereinafter, “Ji et al.”). Particularly, with regard to claims 5, 22, 42 and 60, the office action states that Saito et al. do not expressly teach “wherein multiple modifications to the parent directories at the node are performed according to an order in which corresponding updates occur.” However, the office action states that Ji et al. teach this feature (at page 5, section 4.2) and that it would have been obvious to combine Ji et al. with Saito et al.

The applicants respectfully traverse the rejection on the grounds that the parent application (U.S. Pub. No. 2004/0111441), from which the present application claims priority, discloses this feature. Particularly, in section 5, “Propagating Updates,” (which are paras. [0107] through [0109] of U.S. Pub. No. 2004/0111441), the parent application discusses that updates to a file (which may be a regular file or a file directory) are propagated to replicas whenever they are modified. In para. [0113], the parent application discusses that delta updates (i.e. partial updates) are applied in same order to each replica. Also, paras. [0123] and [0125] of the parent application disclose that the “last writer wins” is used to resolve conflicts among directory updates.

Because this subject matter of claims 5, 22, 42 and 60 is disclosed by the parent application, claims 5, 22, 42 and 60 are entitled to the filing date of the parent application for priority. As such, Saito is not available as prior art against claims 5, 22, 42 and 60. For at least this reason, claims 5, 22, 42 and 60 are allowable.

Claims 6, 23, 43 and 61 were rejected under 35 U.S.C. § 103 as being unpatentable over Saito et al. in view of “Detection of Mutual Inconsistency in Distributed Systems” (hereinafter, Parker et al.). Particularly, with regard to claims 6, 23, 43 and 61, the office action states that Saito et al. do not expressly teach “wherein a modification is performed at the node and an earlier inconsistent modification is ignored.” However, the office action states that Parker et al. teach this feature (at pages 244-245, section III(C) and section IV) and that it would have been obvious to combine Parker et al. with Saito et al.

The applicants respectfully traverse the rejection on the grounds that the parent application discloses this feature. Particularly, in Section 5.2, “Conflict Resolution,” (which are paras. [0123] through [0128] of U.S. Pub. No. 2004/0111441), the parent application discusses that “last writer wins” is used to resolve conflicts and, in the specific example shown in Figure 9, an modification at the node “Alice” which is inconsistent with a more-recent modification at the node “Bob,” is deleted. This means that the earlier inconsistent modification is effectively ignored.

Because this subject matter of claims 6, 23, 43 and 61 is disclosed by the parent application, claims 6, 23, 43 and 61 are entitled to the filing date of the parent application for priority. As such, Saito is not available as prior art against claims 6, 23, 43 and 61. For at least this reason, claims 5, 22, 42 and 60 are allowable.

Claims 8, 9, 25, 45 and 63 were rejected under 35 U.S.C. § 103 as being unpatentable over Saito et al. in view of “Designing a Robust Namespace for Distributed File Services” (hereinafter, “Zhang et al.”). Particularly, with regard to claims 8, 9, 25, 45 and 63, the office action states that Saito et al. do not expressly teach “wherein the directory operation is selected from a group consisting of rename, link and unlink.” However, the office action states that Zhang et al. teach this feature (at page 2, section 2, “Problem Abstraction,” page 4, figure 3 and page 5, figure 4) and that it would have been obvious to combine Zhang et al. with Saito et al.

The applicants respectfully traverse the rejection on the grounds that the parent application discloses this feature. Particularly, in the last six lines of the paragraph following the section heading “Related Work,” (which is para. [0052] of U.S. Pub. No. 2004/0111441), the parent application discloses the “rename” operation. Also, under the section heading “Structure of a File System,” (paras. [0070] through [0073] of U.S. Pub.

No. 2004/011144), the parent application discloses linking and hard-linking of files. Finally, under the section heading “Availability Analysis,” (para. [0183] of U.S. Pub. No. 2004/011144), the parent application discloses the unlink operation.

Because this subject matter of claims 8, 9, 25, 45 and 63 is disclosed by the parent application, claims 8, 9, 25, 45 and 63 are entitled to the filing date of the parent application for priority. As such, Saito is not available as prior art against 8, 9, 25, 45 and 63. For at least this reason, claims 8, 9, 25, 45 and 63 are allowable.

Claims 13, 15, 29, 31, 49, 51, 67 and 69 were rejected under 35 U.S.C. § 103 as being unpatentable over Saito et al. in view of U.S. Patent No. 6,070,164 to Vagnozzi (hereinafter, “Vagnozzi”). Particularly, with regard to claims 13, 15, 29, 31, 49, 51, 67 and 69, the office action states that Saito et al. do not expressly teach “wherein a replica is deleted by marking the replica as invalid.” However, the office action states that Vagnozzi teaches this feature (at col. 4, lines 65-67) and that it would have been obvious to combine Vagnozzi with Saito et al.

The applicants respectfully traverse the rejection on the grounds that the parent application discloses this feature. Particularly, in para. [0127] of U.S. Pub. No. 2004/0111441 (which is the parent application), a file to be removed from a directory is marked as “dead.”

Because this subject matter of claims 13, 15, 29, 31, 49, 51, 67 and 69 is disclosed by the parent application, claims 13, 15, 29, 31, 49, 51, 67 and 69 are entitled to the filing date of the parent application for priority. As such, Saito is not available as prior art against 13, 15, 29, 31, 49, 51, 67 and 69. For at least this reason, claims 13, 15, 29, 31, 49, 51, 67 and 69 are allowable.

Claims 14, 30, 50 and 68 were rejected under 35 U.S.C. § 103 as being unpatentable over Saito et al. in view of Vagnozzi and Zhang et al. Particularly, with regard to claims 14, 30, 50 and 68, the office action states that Saito (as modified by Vagnozzi) does not expressly teach “wherein said marking the replica as invalid comprises removing the backpointer for the replica.” However, the office action states that Zhang et al. teach this feature (at page 3, section 2, “Problem Abstraction”) and that it would have been obvious to combine Zhang et al. with Saito et al. (as modified by Vagnozzi).

The applicants respectfully traverse the rejection on the grounds that the parent application discloses this feature. Particularly, para. [0127] of U.S. Pub. No. 2004/0111441 (which is the parent application), discloses that a file to be removed from a directory is marked as "dead." This paragraph also discloses that the removed file may be "in effect, merely a copy of the backpointers..."

Because this subject matter of claims 14, 30, 50 and 68 is disclosed by the parent application, claims 14, 30, 50 and 68 are entitled to the filing date of the parent application for priority. As such, Saito is not available as prior art against 14, 30, 50 and 68. For at least this reason, claims 14, 30, 50 and 68 are allowable.

Conclusion:

In view of the above, the applicants submit that all of the pending claims are now allowable. Allowance at an early date would be greatly appreciated. Should any outstanding issues remain, the examiner is encouraged to contact the undersigned at (408) 293-9000 so that any such issues can be expeditiously resolved.

Respectfully Submitted,

Dated: Sept. 19, 2006



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